

AMENDMENTS TO THE SPECIFICATIONPage 5, third last paragraph:

Fig. 8 is a rear view in elevation of the face positioning plate that serves as a guide for fasteners and their supporting strip;

Page 5, last paragraph:

Fig. 10 is a front view of the same face positioning plate;

Page 6, first paragraph:

Fig. 11 is a plan view, with a portion shown in section, of the same face positioning plate;

Page 11, last paragraph:

In addition to the foregoing, force-transmitting unit 4 also carries a screw bolt 120 which is received in a threaded opening 121 in the forward end of barrel 34. A lock nut 122 is screwed onto bolt 120 in position to engage the end face 35 of barrel 34, whereby to lock bolt 120 in a selected position. The head of bolt 120 functions as a stroke limiter acting in conjunction with a stop member 124 carried by a ~~face or~~ positioning plate 130 described below. Bolt 120 is extended or retracted as required to assure that the fasteners 8 are fully seated in the wood/steel substrate.

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Referring now to Figs. 5, 6 and 8-11, the outer ends of slide rods 66 and 67 are secured in blind holes 132 in face positioning plate 130, preferably by lock pins 133. Face Positioning plate 130 has a round bore 134 that extends parallel to holes 128 and is sized to receive tool bit 76 in a close fit. Bore 134 extends for only part of the length (the vertical dimension as seen in Figs. 6 and 9) of the face positioning plate, the inner end of bore 134 merging with an enlarged opening 136 that extends through the outer (bottom) end surface 138 of the face positioning plate and serves as an exit passageway through which fasteners are driven into a workpiece, e.g., a wood flooring panel overlying a metal substrate in the form of an I-beam or a U-shaped channel member. Face Positioning plate 130 is formed with two laterally projecting foot rests 139 that are used to facilitate use of the illustrated apparatus.

Face Positioning plate 130 has a rear surface 140 and a front surface 142. Rear surface 140 is formed with an opening 144 that is of equal width throughout its length except for a wider section 146 near its top end. The minimum width of opening 144 is large enough to accommodate fasteners 8 (Figs. 6, 12 and 14) described hereinafter and the width of its wider section 146 is made slightly larger, preferably about 0.015 inch greater, than the width of the plastic strip 250 (Figs. 6, 12 and 14) that supports fasteners 8. Front surface 142 is formed with a T-shaped opening 148 that has a wider upper section 150 with a width that is slightly greater than the width (lateral dimension) of the plastic fastener-supporting strip 250. Opening 148 is aligned with opening 144 and its upper section 150 is aligned vertically and horizontally with the wide section 146 of opening 144, whereby its upper section 150 can serve as an exit path for successive fastener-retaining sleeve sections of plastic strip 250. Preferably all of the edge surfaces of openings 144 and the sides of the upper section 150 of opening 148 are chamfered (beveled) as indicated at 160 and 162.

Page 13, first paragraph:

Referring to Figs. 6, 12 and 13, the magazine 6 comprises opposite end plates 170 and 172 and two parallel and mutually spaced side plates 174 (only one of which is shown) that are joined to and extend between the two end plates. The magazine is attached to face positioning plate 130 by four bolts 178 (Fig. 2) that pass through aligned holes 182 and 184 in face positioning plate 130 and end plate 172 respectively (Figs. 8, 13). The spacing between the mutually confronting inner surfaces 186 of side plates 174 is slightly greater than the width of strip 250. The inner surfaces 186 are provided with longitudinally extending ribs 188 that serve as supporting rails for fastener-supporting strip 250.

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with opening 144 so that strip 250 and the associated fasteners 8 can pass cleanly through slot 196 and opening 144 into opening 136.

In this connection, it should be noted that when a strip 250 carrying fasteners 8 is supported on rails 188, the heads 214 of the fasteners will be above the level of the upper edge 151 of the upper section 150 of opening 148; however, the strip 250 will be aligned with the upper opening section 150 so that the upper side strip 250 is slightly below the upper edge 151 of upper opening section 150. Consequently, (a) when the strip 250 is urged toward face positioning plate 130 by pusher member 190, it will be stopped as a result of surface 200 (Fig. 9) of face positioning plate 130 intercepting the head of the lead (first) fastener carried by the plastic strip, and (b) after the lead fastener is driven out of the plastic strip by the tool bit in the manner hereinafter described and the tool bit withdrawn from opening 134 of face positioning plate 130, the leading (now empty) fastener-retaining section of the plastic strip will be forced through the opening 150 until the head of the next-in-line fastener is intercepted by surface 200.

Referring to Figs. 6, 12 and 25, the illustrated fasteners 8 each includes comprises a head 214, a pointed tip 216 and a shaft that comprises a forward self-drilling section that consists of two helical cutting flutes 218 and a rearward self-tapping section that is characterized by a screw thread 222 that commences at the rearward end of cutting flutes 218 and preferably extends to where the head 214 joins the shaft. However, it is contemplated that the screw thread may terminate short of the fastener head. Preferably screw thread 222 has a triangular shape in cross-section, so that the thread has a sharp cutting edge. The maximum diameter of the self-tapping screw section exceeds the maximum diameter of the forward self-drilling section comprising flutes 218, whereby to allow the self-tapping section of the fastener to cut a mating screw thread in the hole formed in a metal substrate by the drilling flutes of the fastener's forward self-drilling

Page 18, second paragraph:

The fasteners 8 and the plastic fastener supporting strip 250 are made in accordance with the invention disclosed in my application Ser. No. 10/618,327, filed on even date herewith for "A Fastener Clip For Use In Supplying Fasteners To a Fastener Driving Tool" (Attorney Docket No. HMM-91 CIP). To the extent necessary, the disclosure of that copending application is incorporated herein by reference.

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Operation of the above described apparatus and the method of the present invention are now described in relation to applying fasteners to attach hard wood floor panels to a high tensile strength steel substrate. In this connection, Fig. 26 illustrates a portion of a hard wood flooring member 350 overlying a substrate in the form of a high strength steel beam 352 having a box-like cross-sectional shape, with the two components being secured together by a fastener 8 installed using the driver apparatus of this invention. Assuming that the apparatus is at rest in a vertical position with face positioning plate 130 and magazine 6 resting on the top surface of flooring member 350, springs 52 and 53 act to hold driver 2 and tool bit 76 in an elevated standby position (Figs. 5 and 6) wherein the tool bit is spaced above the level of the fasteners supplied by magazine 6 to positioning plate 140. With the driver 2 connected to a source of pressurized air, and the magazine 6 loaded with a strip of fasteners 8, the operator places his feet on top of the two foot rests 139 so as to hold the tool down with the weight of his body as it drives a fastener, depresses trigger 16, and pushes down on handles 12 and 32 to compress springs 62 and 63 enough to bring the rotating tool bit into engagement with the head of the leading fastener 8 located in opening 136 of the face positioning plate. The end of the rotating tool bit will enter the recess 236 (in the case of a square end on the tool bit) or the recess 236A (in the case of a multi-lobe end on the tool bit) and then will operate to drive the fastener into the workpiece. As the fastener is being driven by the axially-biased, power-driven rotating tool bit, the cutting flutes 218 and wings 224 will drill through the wood panel and then flutes 218 will drill a hole in the metal substrate. As the cutting flutes 218 penetrate the metal substrate, the relatively weak wings 224 engage that substrate and will

be sheared off as a result of the resistance to penetration offered by the hard substrate (the absence of wings 224 in the driven fastener is evidenced by Fig. 26). When the forward portion of the screw thread 222

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Once the lead fastener has been driven, the operator first releases trigger 16 to driver 2 and then stops pressing down on handles 12 and 32, whereupon springs 62 and 63 push driver 2 upwardly to withdraw the tool bit from face positioning plate 130. Removal of the tool bit from face positioning plate 130 allows the pusher to move the plastic strip forward so as to move the now empty sleeve 252 through opening 150 and position the next-in-line fastener in bore 136. This action avoids the possibility of portions of the plastic strip 250 being captivated between the fastener head and the wood panel.

Page 23, first full paragraph:

Referring to Figs. 18, 22 and 23, barrel 34A differs from barrel 34 previously described in that it is provided with a bore 278 that replaces threaded opening 121. Bore 278 extends for the full length of barrel 34A and serves to slidably accommodate a push rod 280. The end of rod 280 that projects out of housing 20A has an external screw thread and is screwed into a hollow screw 282 that is screwed into a threaded hole in the upper end of face positioning plate 130. Screw 282 has a knurled external flange 284 that serves as a gripping section whereby screw 282 can be rotated, whereby to set the effective length of rod 280 relative to bore 278. Flange 284 also serves as a fail-safe stop by intercepting the end surface 35 of band 34A. A check nut 285 is screwed onto push rod 280.



Page 25, first paragraph:

outwardly of barrel 34A. This outwardly extending movement of the slide rods relative to housing 20A and barrel 34A has the effect of raising tool 2 and tool bit 76 to a standby position wherein the tool bit is spaced above the fasteners that are delivered to face positioning plate 130 by magazine 6, essentially the same position as illustrated in Figs. 5 and 6. Upon closing of switch 296 by the operator, compressed air will flow out through port 299 to valve port 311, whereupon the increased pressure at port 311 will cause the valve to change states, with port 308 now connected to exhaust port 309 and port 307 now connected to inlet port 304. This results in exhaustion of pressurized air from the two cylinder bores (52/270 and 53/271) via hose connectors 274 and 275 and ports 308 and 309 of valve 302 and application of pressurized air to the same cylinder bores via valve port 307 and hose connectors 312 and 313 respectively, thereby forcing slide rods 66 and 67 to move inwardly of barrel 34A and forcing the tool downward to bring the tool bit into firm engagement with the recessed head of the fastener located inside of ~~position~~ positioning plate 130. When trigger 16 of pneumatic driver 12 is depressed, it allows compressed air supplied via valve port 307 to operate the driver causing the tool bit to rotate to drive the fastener with which it is engaged in the manner previously described.

Page 26, first full paragraph:

The primary advantage of the preferred embodiment is that, unlike the other embodiment shown in Figs. 1-13, no downward pressure needs to be exerted by the operator to bring the tool bit into engagement with the fastener to be driven, thereby reducing operator fatigue. A second advantage of the preferred embodiment over the embodiment of Figs. 1-13 is that the driver stops driving the fastener automatically when the fastener has been driven to the desired depth, thereby preventing premature wearing or shearing of the tool bit (a time and cost savings) and assuring consistent depth of penetration of the fasteners into the wood/metal substrate. A significant advantage results from the two foot rests 139. When a fastener is being driven into a flooring panel or other structural member that is to be fastened to an underlying substrate, there is a reactive force that tends to lift the ~~face~~ positioning plate 130 up out of engagement with the underlying surface. The foot rests 139 allow the operator's weight to be utilized to keep the ~~faced~~ face plate against the surface into which the fastener is to be driven. Otherwise the operator would have to use his arms to achieve the same result, but this is more tiresome.